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10/681,122	10/09/2003	Maoke Chen	60282.00320	8085

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EXAMINER	
DUONG, FRANK	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	**Application No.** 10/681,122	**Applicant(s)** CHEN ET AL.	
	Examiner Frank Duong	**Art Unit** 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,14-21 and 29-31* is/are rejected.

7)☒ Claim(s) *7-13 and 22-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to communications dated 10/09/03. Claims 1-31 are pending in the application.

Information Disclosure Statement

2. The information disclosure statement filed 01/05/05 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been considered and placed in the application file.

Claim Objections

3. Claims 17-18, 21 and 23-31 objected to because of the following informalities:

As per claims 17-18, 21 and 23-31, they are commonly recited the term “adapted to”. The term “adapted to” should be changed --configured to--. A typical reason for doing so is that such term or claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. See MPEP § 2111.049 [R.3].

As per claim 21, in addition to the rationales discussed above, the term “and/or” should be changed to either --and-- or --or-- or the claims should be rewrite to better set forth the scope of the protection the Applicants seek to protect.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 4-6, 14-18, 20-21 and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Ricciulli (USP 6,275,470).

Regarding **claim 1**, in accordance with Ricciulli reference entirety, Ricciulli discloses a method (Figs. 1-2) for configuring connections between a plurality of network nodes (*100, 140 and 160*), wherein each pair of network nodes is connected via virtual direct connections (*110 and 170*) (*col. 3, lines 41-45*), the method comprising the steps of:

performing quality measurements (*cost/performance metrics*) of the virtual direct connections between each pair of the network nodes (*col. 5, lines 5-16 or lines 40-44*); and

deciding, based on the results of the quality measurements, whether a virtual direct connection is to be used for conveying data or not (*col. 6, lines 10-19*),

wherein the results of the quality measurements are transmitted to a network configuration control element (module 110) which performs the deciding step (*col. 5, lines 44-47*).

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein in the deciding step, when it is decided that between two network nodes no virtual direct connection is usable, a route between these two network nodes via at least one other network node is determined based on the results of the quality measurements (*Fig. 2; steps 225-250, it is disclosed alternate path is used if it is deemed to be better suite than the default path as discussed at col. 4, lines 39-47*).

Regarding **claim 4**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein the quality measurements are performed by each network node with respect to the virtual direct connections to other network nodes (*col. 5, lines 39-44*).

Regarding **claim 5**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein the quality measurements comprise measurement of a delay time on a virtual direct connection between two network nodes (*col. 5, line 57*).

Regarding **claim 6**, in addition to features recited in base claim 5 (see rationales discussed above), Ricciulli also discloses wherein a for a maximum allowable delay time is set, and when a delay time on a virtual direct connection exceeds the threshold, the connection is determined as not being usable (*this limitation is inherently encompasses by the process steps 215-220 of Fig. 2 for the default path is not used because of the threshold in step 215 is exceeded*).

Regarding **claim 14**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein the measuring and the deciding step are performed every predetermined interval (*this limitation is encompasses by the disclosed "on demand routing", "discovering" or "adding useful forwarding paths through the overlay network", disclosed at col. 4, lines 59-61*).

Regarding **claim 15**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein the measuring and the deciding step are performed upon triggering by an operator of the networks or upon changing the network configuration (*col. 4, lines 59-61*).

Regarding **claim 16**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli also discloses wherein the results of the deciding step are sent to the network nodes and the network nodes update routing tables correspondingly (*col. 7, lines 34-36*).

Regarding **claim 17**, in accordance with Ricciulli reference entirety, Ricciulli shows a network system (Fig. 1) comprising a plurality of network nodes (*100, 140 and 160)* and a network configuration control element (100), wherein each pair of network nodes (100 and 160) is connected via virtual direct connections (*110 and 170*) (*col. 3, lines 41-45*), wherein the network nodes are configured to perform quality measurements of the virtual direct connections and to send results of the quality measurements to the network configuration control element, and the network configuration control element is configured to decide, based on the results of the quality measurements, whether a virtual direct connection is to be used for conveying data or not (*see col. 3, line 25 to col. 8, line 40 and the explanation pertaining the rejection of method steps of claim 1 as discussed above*).

Regarding **claim 18**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli also discloses wherein the network configuration element is configured to determine, when it has decided that between two network nodes no virtual direct connection is usable, a route between these two network nodes via at least one other network node based on the results of the quality measurements (*Fig. 2; steps 225-250, it is disclosed alternate path is used if it is deemed to be better suite than the default path as discussed at col. 4, lines 39-47*).

Regarding **claim 20**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli also discloses wherein the quality measurements comprise measurement of a delay time on a virtual direct connection between two network nodes.

Regarding **claim 21**, in addition to features recited in base claim 20 (see rationales discussed above), Ricciulli also discloses wherein a threshold (M) for a maximum allowable delay time is set, and the network configuration control element ***and/or*** each network node (TP) is configured to determine the virtual direct connection as not being usable when a delay time on a virtual direct connection exceeds the threshold (*this limitation is inherently encompasses by the process steps 215-220 of Fig. 2 for the default path is not used because of the threshold in step 215 is exceeded*).

Regarding **claim 29**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli also discloses wherein the network configuration control element (TA) is configured to request the quality measurement and to request the measurement and to perform the decision every predetermined interval (*col. 4, lines 59-61*).

Regarding **claim 30**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli also discloses wherein the network configuration control element is configured to request the quality measurement and to request the measurement and to perform the decision upon triggering by an operator of the networks or upon changing the network configuration (*col. 4, lines 59-61*).

Regarding **claim 29**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli also discloses wherein the network configuration control element is configured to send the results of the decision to the network nodes, and the network nodes are configured to update routing tables correspondingly (*col. 7, lines 34-36*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ricciulli in view of Durand et al (RFC 3053, IPv6 Tunnel Broker, pages 1-13, January 2001) (hereinafter "Durand").

Regarding **claim 3**, in addition to features recited in base claim 1 (see rationales discussed above), Ricciulli fails to explicitly disclose wherein the network nodes are tunnel-end-points and the virtual direct connection between each pair of the network nodes are tunnels, the tunnels providing virtual connections between the nodes by encapsulating a first type network protocol within data carried by a second type network. However, such limitation lacks thereof from Ricciulli reference is well known and taught by Durand.

In an analogous art, Durand IPv6 tunnel broker, comprising, among other things, the limitation of "*wherein the network nodes are tunnel-end-points and the virtual direct connection between each pair of the network nodes are tunnels, the tunnels providing virtual connections between the nodes by encapsulating a first type network protocol (IPv6) within data carried by a second type network (IPv4)*" (see page 4, Fig. 1). The motivation for doing so is to help the early IPv6 adopters to hook up to existing IPv6 network to get stable, and permanent IPv6 addresses and DNS names (see Durand, Abstract on page 1).

Thus, it would have been obvious to those skilled in the art to implement Durand's teaching to the Ricciulli's method to arrive the claimed invention with a motivation is to help the early IPv6 adopters to hook up to existing IPv6 network to get stable, and permanent IPv6 addresses and DNS names (see Durand, Abstract on page 1).

Regarding **claim 19**, in addition to features recited in base claim 17 (see rationales discussed above), Ricciulli fails to explicitly disclose wherein the virtual direct connection between each pair of the network nodes are tunnels, the tunnels providing virtual connections between the nodes by encapsulating a first type network protocol within data carried by a second type network. However, such limitation lacks thereof from Ricciulli reference is well known and taught by Durand.

In an analogous art, Durand IPv6 tunnel broker, comprising, among other things, the limitation of "*wherein the virtual direct connection between each pair of the network nodes are tunnels, the tunnels providing virtual connections between the nodes by encapsulating a first type network protocol (IPv6) within data carried by a second type network (IPv4)*" (*see Durand, page 4, Fig. 1*). The motivation for doing so is to help the early IPv6 adopters to hook up to existing IPv6 network to get stable, and permanent IPv6 addresses and DNS names (*see Durand, Abstract on page 1*).

Thus, it would have been obvious to those skilled in the art to implement Durand's teaching to the Ricciulli's method to arrive the claimed invention with a motivation is to help the early IPv6 adopters to hook up to existing IPv6 network to get stable, and permanent IPv6 addresses and DNS names (see Durand, Abstract on page 1).

Allowable Subject Matter

6. Claims 7-13 and 22-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, considered individually or in combination fails to discloses the claimed invention of base claims 1 and 17 and further limit with novel and unobvious limitation "*wherein the quality measurements comprise a measurement of a data loss rate on a virtual direct connection between two network nodes*," structurally and functionally interconnected with other limitations in a manner as recited in the dependent claims 7-13 and 22-28. Ricciulli, at col. 5, lines 55-59, clearly states "*the combining of cost functions may entail adding values (as where the cost metric is delay) or calculating the minimum value (as for bandwidth), or in general may involve a complex parameterized combination of cost functions.*" Therefore, a person skilled in the art would not refer to Ricciulli reference in order to look for improvement regarding the quality measurements comprise a measurement of a data loss rate on a virtual connection between two nodes in a manner as recited in claims 7-13 and 22-28.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mitra et al (Patent Application Publication 2003/0099237).

Blanchet et al, (Patent Application Publication 2004/0013130).

Hsu (USP 6,363,319).

Holender (USP 5,727,051).

Zwick, All Pair Shortest Path using Bridging Sets and Rectangular Matrix Multiplication, downloadable at http://www.citeseer.htm, pages 1-27, August 2000.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is 571-272-3164. The examiner can normally be reached on 7:00AM-3:30PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FRANK DUONG
PRIMARY EXAMINER

May 15, 2007